Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of allocating bandwidth to committed and uncommitted data traffic flows for transfer through a network device, comprising:

maintaining a queue size of a committed data traffic flow related to one or more committed data traffic flows for a virtual connection;

maintaining a queue size of an uncommitted traffic flow queue related to one or more uncommitted data flows for the virtual connection;

allocating bandwidth to a committed data traffic flow based on a guaranteed data transfer rate and [[a]] the queue size of the committed data traffic flow in the network device; and

allocating bandwidth to uncommitted data traffic flows using a weighted maximum/minimum process, wherein the weighted maximum/minimum process allocates bandwidth to the uncommitted data traffic flows in proportion to a weight associated with each uncommitted data traffic flow, and the weight corresponding to an amount of bandwidth needed by the uncommitted data traffic flow and determined based on a delay and an average rate requirement for each uncommitted data traffic flow.

2. (Cancelled).

3. (Previously Presented) The method of claim 1, wherein the weighted maximum/minimum process increases bandwidth to the uncommitted data traffic flows in accordance with the weights associated with the uncommitted data traffic flows until at least one of the uncommitted data traffic flows reaches a maximum bandwidth allocation.

4. (Original) The method of claim 3, wherein the weighted maximum/minimum process allocates remaining bandwidth to remaining uncommitted data traffic flows based on weights associated with the remaining uncommitted data traffic flows.

5. (Original) The method of claim 1, wherein the bandwidth comprises data cell slots.

6. (Original) The method of claim 1, wherein the bandwidth is allocated to the data traffic flows in discrete time intervals.

7. (Currently Amended) A method of allocating bandwidth to data flows passing through a network device, each of the data flows having an associated weight, the weight corresponding to an amount of bandwidth needed by an uncommitted data traffic flow, the method comprising:

increasing an amount of bandwidth to the data flows in proportion to weights of the data flows until one port through the network device reaches a maximum value;

freezing amounts of bandwidth allocated to data flows in the one port; and

increasing an amount of bandwidth to all remaining data flows passing through the network device in proportion to weights of the remaining data flows.

8. (Previously Presented) The method of claim 7, further comprising:

increasing the amount of bandwidth to the remaining data flows until another port through the network device reaches a maximum value;

freezing amounts of bandwidth allocated to the data flows in the other port; and

increasing an amount of bandwidth to remaining data flows passing through the network device in proportion to weights of the remaining data flows.

9. (Original) The method of claim 7, further comprising assigning one or more of the data flows a minimum bandwidth, wherein the amount of bandwidth allocated to the one or more data flows is increased relative to the minimum bandwidth.

10. (Previously Presented) The method of claim 7, wherein bandwidth is allocated to the data flows in discrete time intervals.

11. (Currently Amended) A method of allocating bandwidth to data flows passing through a network device, comprising:

allocating a predetermined amount of bandwidth to one or more of the data flows; and

distributing remaining bandwidth to remaining data flows using a weighted maximum/minimum process, wherein the weighted maximum/minimum process allocates bandwidth to the remaining data flows in proportion to a weight associated with each remaining data flow, and the weight corresponding to an amount of bandwidth needed by a data flow and being determined based on a delay and an average rate requirement for each remaining data flow.

12. (Cancelled).

13. (Previously Presented) The method of claim 11, wherein the weighted maximum/minimum process comprises:

increasing an amount of bandwidth to the remaining data flows in proportion to weights associated with the remaining data flows until one port through the network device reaches a maximum value.

14. (Previously Presented) The method of claim 13, wherein the weighted maximum/minimum process further comprises:

freezing amounts of bandwidth allocated to the remaining data flows in the one port; and

increasing an amount of bandwidth to still remaining data flows passing through the network device in proportion to weights of the still remaining data flows.

15. (Previously Presented) A method of allocating bandwidth to data flows passing through a network device, comprising:

determining a character of the data flows, the character corresponding to a probability of the data flow in using the bandwidth; and

allocating bandwidth to the data flows in accordance with the character of the data flows, wherein the bandwidth is allocated to data flows according to which data flows have a highest probability of using the bandwidth.

16. (Original) The method of claim 15, wherein the character of the data flows includes peak cell rate, likelihood of bursts, and/or average cell rate.

17. (Currently Amended) A method of allocating bandwidth to data flows passing through a network device, comprising:

allocating the bandwidth using a weighted maximum/minimum process, wherein the weighted maximum/minimum process allocates bandwidth to uncommitted data traffic flows in proportion to a weight associated with each uncommitted data traffic flow, and the weight corresponding to an amount of bandwidth needed by the uncommitted data traffic flow and being determined based on a delay and an average rate requirement for each uncommitted data traffic flow.

18. (Cancelled).

19. (Currently Amended) The method of claim [[18]] 17, wherein allocating the bandwidth according to the weights comprises:

increasing an amount of bandwidth allocated to each data flow in proportion to a weight assigned to the data flow; and

freezing ~~the~~ an amount of bandwidth allocated to a data flow when either (i) an input port or an output port of the network device reaches a maximum utilization, or (ii) the data flow reaches a maximum bandwidth.

20. (Original) The method of claim 19, further comprising:

increasing an amount of bandwidth to remaining data flows passing through the network device until either

(i) another input port or output port of the network device reaches a maximum utilization, or

(ii) one of the remaining data flows reaches a maximum bandwidth;

freezing an amount of bandwidth allocated to the remaining data flow that has reached a maximum bandwidth or to the remaining data flow passing through an input or output port reached that has reached a maximum utilization; and

increasing the amount of bandwidth to still remaining data flows passing through the network device in proportion to weights associated with the remaining data flows.

21. (Original) The method of claim 20, wherein, after all of the data flows passing through the network device are frozen, the method further comprises:

distributing remaining bandwidth at an output port to data flows passing through the output port.

22. (Original) The method of claim 20, wherein, after all of the data flows passing through the network device are frozen, the method further comprises:

distributing remaining bandwidth at an output port to data flows passing through the output port in proportion to weights of the data flows passing through the output port.

23. (Original) The method of claim 20, wherein, after all of the data flows passing through the network device are frozen, the method further comprises:

distributing remaining bandwidth at an output port to data flows passing through the output port according to which data flows have a highest probability of using the bandwidth.

24. (Original) The method of claim 17, wherein the bandwidth is allocated in discrete time intervals.

25. (Currently Amended) A method of allocating bandwidth to data flows through a network device, comprising:

allocating bandwidth to the data flows using a weighted ~~max/min~~ maximum/minimum process, wherein the weighted maximum/minimum process allocates bandwidth to uncommitted data traffic flows in proportion to a weight associated with each uncommitted data traffic flow, and the weight corresponding to a delay and an average rate requirement for each uncommitted data traffic flow;

wherein an amount of bandwidth allocated to data flows passing through an input port of the network device is greater than an amount of data that can pass through the input port of the network device.

26. (Previously Presented) A method of allocating bandwidth to data flows passing through a network device, comprising:

allocating bandwidth to data flows passing through input ports of the network device using a weighted maximum/minimum process, wherein the weighted maximum/minimum process allocates bandwidth to uncommitted data traffic flows in proportion to a weight associated with each uncommitted data traffic flow, and the weight corresponding to a delay and an average rate requirement for each uncommitted data traffic flow.

27. (Original) The method of claim 26, wherein allocating the bandwidth comprises:

increasing bandwidth allocated to data flows passing through each input port in proportion to a weight assigned to the data flow passing through the input port; and

freezing an amount of bandwidth allocated to a data flow passing through an input port when either (i) the input port reaches a maximum utilization, or (ii) the data flow reaches a maximum bandwidth.

28. (Original) The method of claim 27, further comprising:

continuing to increase the bandwidth allocated to non-frozen data flows in proportion to weights of the data flows until an amount of bandwidth is frozen at all of the data flows.

29. (Previously Presented) A method of allocating bandwidth to data flows through a network device, comprising:

allocating bandwidth to the data flows passing through output ports of the network device using a weighted max/min process, wherein the weighted maximum/minimum process allocates bandwidth to uncommitted data traffic flows in proportion to a weight associated with each uncommitted data traffic flow, and the weight corresponding to a delay and an average rate requirement for each uncommitted data traffic flow.

30. (Original) The method of claim 29, wherein allocating the bandwidth comprises:

increasing an amount of bandwidth allocated to data flows passing through each output port in proportion to a weight assigned to a data flow passing through an output port; and

freezing the amount of bandwidth allocated to the data flow passing through the output port when either (i) the output port reaches a maximum utilization, or (ii) the data flow reaches a maximum bandwidth.

31. (Original) The method of claim 30, further comprising:

continuing to increase the amount of bandwidth allocated to non-frozen data flows in proportion to weights of the data flows until the amount of bandwidth allocated to all data flows is frozen.

32. (Original) The method of claim 31, wherein maximum values assigned to each data flow are based on the bandwidth allocations.

33. (Original) The method of claim 30, wherein, after the amount of bandwidth assigned to all output ports is frozen, the method further comprises:

distributing remaining bandwidth at an output port to data flows passing through the output port.

34. (Original) The method of claim 30, wherein, after the amount of bandwidth assigned to all output ports is frozen, the method further comprises:

distributing remaining bandwidth at an output port to data flows passing through the output port in proportion to weights of the data flows.

35. (Original) The method of claim 30, wherein after all of the data flows passing through the network device are frozen, the method further comprises:

distributing remaining bandwidth at an output port to data flows passing through the output port according to which data flows have a highest probability of using the bandwidth.

36. (Original) The method of claim 26, wherein the bandwidth is allocated in discrete time intervals.

37. (Original) The method of claim 26, further comprising:

allocating bandwidth to committed data traffic based on a guaranteed data transfer rate.

38. (Original) The method of claim 37, wherein bandwidth is allocated to the committed data traffic in response to a request for bandwidth such that any request that is less than or equal to the guaranteed data transfer rate is granted.

39. (Original) The method of claim 26, wherein:

the bandwidth is allocated to uncommitted data traffic and, for committed data traffic, bandwidth is allocated based on a guaranteed transfer rate; and

remaining bandwidth, not allocated to the committed data traffic, is allocated to the uncommitted data traffic.

40. (Original) The method of claim 19, further comprising:

allocating a predetermined amount of bandwidth to one or more of the data flows; and distributing remaining bandwidth to non-frozen remaining data flows by:

increasing an amount of bandwidth allocated to each remaining data flow in proportion to a weight assigned to the remaining data flow; and

freezing the amount of bandwidth allocated to a remaining data flow when either (i) an input port or an output port of the network device reaches a maximum utilization, or (ii) the remaining data flow reaches a maximum bandwidth.

41. (Original) The method of claim 37, wherein bandwidth is allocated to the committed data traffic in response to a request for bandwidth such that any request that is greater than the guaranteed data transfer rate is granted at the guaranteed rate.

42. (Currently Amended) An apparatus for allocating bandwidth to data traffic flows through the apparatus, the apparatus comprising a memory to store executable code and a processor to execute the code to:

<u>maintain a queue size of a committed data traffic flow related to one or more committed data traffic flows for a virtual connection;</u>

maintain a queue size of the uncommitted traffic flow queue related to one or more uncommitted data flows for the virtual connection;

allocate bandwidth to a committed data traffic flow based on a guaranteed data transfer rate and a queue size of the committed data traffic flow in the apparatus; and

allocate bandwidth to uncommitted data traffic flows using a weighted maximum/minimum process, wherein the weighted maximum/minimum process allocates bandwidth to the uncommitted data traffic flows in proportion to a weight associated with each uncommitted data traffic flow, the weight corresponding to an amount of bandwidth needed by an uncommitted data traffic flow and being determined based on a delay and an average rate requirement for each uncommitted data traffic flow.

43. (Cancelled).

44. (Previously Presented) The apparatus of claim 42, wherein the weighted maximum/minimum process increases bandwidth to the uncommitted data traffic flows in accordance with the weights associated with the uncommitted data traffic flows until at least one of the uncommitted data traffic flows reaches a maximum bandwidth allocation.

45. (Original) The apparatus of claim 44, wherein the weighted maximum/minimum process allocates remaining bandwidth to remaining uncommitted data traffic flows based on weights associated with the remaining uncommitted data traffic flows.

46. (Original) The apparatus of claim 42, wherein the bandwidth comprises data cell slots.

47. (Original) The apparatus of claim 42, wherein the bandwidth is allocated to the data traffic flows in discrete time intervals.

48. (Currently Amended) An apparatus for allocating bandwidth to data flows passing through the apparatus, each of the data flows having an associated weight, the weight corresponding to an amount of bandwidth needed by an uncommitted data traffic flow, the apparatus comprising a memory to store executable code and a processor to execute the code to:

increase an amount of bandwidth to the data flows in proportion to the weights of the data flows until one port through the apparatus reaches a maximum value;

freeze the amounts of bandwidth allocated to the data flows in the one port; and

increase the amount of bandwidth to all the remaining data flows passing through the apparatus in proportion to the weights of the remaining data flows.

49. (Previously Presented) The apparatus of claim 48, wherein the memory:

increases the amount of bandwidth to the remaining data flows until another port through the apparatus reaches a maximum value;

freezes the amounts of bandwidth allocated to the data flows in the other port; and increases the amount of bandwidth to remaining data flows passing through the apparatus in proportion to the weights of the remaining data flows.

50. (Previously Presented) The apparatus of claim 48, wherein the memory assigns one or more of the data flows a minimum bandwidth, wherein the amount of bandwidth allocated to the one or more data flows is increased relative to the minimum bandwidth.

51. (Original) The apparatus of claim 48, wherein the bandwidth is allocated to the data flows in discrete time intervals.

52. (Currently Amended) An apparatus for allocating bandwidth to data flows passing through the apparatus, the apparatus comprising a memory to store executable code and a processor to execute the code to:

allocate a predetermined amount of bandwidth to one or more of the data flows; and

distribute remaining bandwidth to remaining data flows using a weighted maximum/minimum process, wherein the weighted maximum/minimum process allocates bandwidth to the remaining data flows in proportion to a weight associated with each remaining data flow, and the weight corresponding to an amount of bandwidth needed by a data traffic flow and being determined based on a delay and an average rate requirement for each uncommitted data traffic flow.

53. (Cancelled).

54. (Original) The apparatus of claim 52, wherein the weighted maximum/minimum process comprises:

increasing an amount of bandwidth to the remaining data flows in proportion to weights associated with the remaining data flows until one port through the apparatus reaches a maximum value.

55. (Previously Presented) The apparatus of claim 54, wherein the weighted maximum/minimum process further comprises:

freezing the amounts of bandwidth allocated to the remaining data flows in the one port; and

increasing the amount of bandwidth to still remaining data flows passing through the apparatus in proportion to weights of the still remaining data flows.

56. (Previously Presented) A apparatus for allocating bandwidth to data flows passing through the apparatus, the apparatus comprising a memory to store executable code and a processor to execute the code to:

determine a character of the data flows, the character corresponding to a probability of the data flow in using the bandwidth; and

allocate bandwidth to the data flows in accordance with the character of the data flows;

wherein the bandwidth is allocated to data flows according to which data flows have a highest probability of using the bandwidth.

57. (Original) The apparatus of claim 56, wherein the character of the data flows includes peak cell rate, likelihood of bursts, and/or average cell rate.

58. (Currently Amended) An apparatus for allocating bandwidth to data flows passing through the apparatus, the apparatus comprising a memory to store executable code and a processor to execute the code to:

allocate the bandwidth using a weighted maximum/minimum process, wherein the weighted maximum/minimum process allocates bandwidth to uncommitted data traffic flows in proportion to a weight associated with each uncommitted data traffic flow, and the weight corresponding to an amount of bandwidth needed by an uncommitted data traffic flow and being determined based on a delay and an average rate requirement for each uncommitted data traffic flow.

59. (Original) The apparatus of claim 58, wherein the weighted maximum/minimum process comprises:

assigning weights to the data flows; and

allocating the bandwidth to the data flows according to the weights.

60. (Original) The apparatus of claim 59, wherein allocating the bandwidth according to the weights comprises:

increasing an amount of bandwidth allocated to each data flow in proportion to a weight assigned to the data flow; and

freezing the amount of bandwidth allocated to a data flow when either

(i) an input port or an output port of the apparatus reaches a maximum utilization, or

(ii) the data flow reaches a maximum bandwidth.

61. (Previously Presented) The apparatus of claim 60, wherein the memory:

increases an amount of bandwidth to remaining data flows passing through the apparatus until either

(i) another input port or output port of the apparatus reaches a maximum utilization, or

(ii) one of the remaining data flows reaches a maximum bandwidth;

freezes an amount of bandwidth allocated to the remaining data flow that has reached a maximum bandwidth or to the remaining data flow passing through an input or output port reached that has reached a maximum utilization; and

increases the amount of bandwidth to still remaining data flows passing through the apparatus in proportion to weights associated with the remaining data flows.

62. (Previously Presented) The apparatus of claim 61, wherein, after all of the data flows passing through the apparatus are frozen, the memory distributes remaining bandwidth at an output port to data flows passing through the output port.

63. (Previously Presented) The apparatus of claim 61, wherein, after all of the data flows passing through the apparatus are frozen, the memory distributes remaining bandwidth at an output port to data flows passing through the output port in proportion to weights of the data flows passing through the output port.

64. (Previously Presented) The apparatus of claim 61, wherein, after all of the data flows passing through the apparatus are frozen, the memory distributes remaining bandwidth at an output port to data flows passing through the output port according to which data flows have a highest probability of using the bandwidth.

65. (Original) The apparatus of claim 58, wherein the bandwidth is allocated in discrete time intervals.

66. (Currently Amended) An apparatus for allocating bandwidth to data flows through the apparatus, the apparatus comprising a memory to store executable code and a processor to execute the code to:

allocate bandwidth to the data flows using a weighted max/min process, wherein the weighted maximum/minimum process allocates bandwidth to uncommitted data traffic flows in proportion to a weight associated with each uncommitted data traffic flow, and the weight corresponding to a delay and an average rate requirement for each uncommitted data traffic flow;

wherein an amount of bandwidth allocated to data flows passing through an input port of the apparatus is greater than an amount of data that can pass through the input port of the apparatus.

67. (Currently Amended) An apparatus for allocating bandwidth to data flows passing through the apparatus, the apparatus comprising a memory to store executable code and a processor to execute the code to:

allocate bandwidth to data flows passing through input ports of the apparatus using a weighted ~~max/min~~ maximum/minimum process, wherein the weighted maximum/minimum process allocates bandwidth to uncommitted data traffic flows in proportion to a weight associated with each uncommitted data traffic flow, and the weight corresponding to a delay and an average rate requirement for each uncommitted data traffic flow.

68. (Original) The apparatus of claim 67, wherein allocating the bandwidth comprises:

increasing bandwidth allocated to data flows passing through each input port in proportion to a weight assigned to the data flow passing through the input port; and

freezing an amount of bandwidth allocated to a data flow passing through an input port when either

(i) the input port reaches a maximum utilization, or

(ii) the data flow reaches a maximum bandwidth.

69. (Previously Presented) The apparatus of claim 68, wherein the memory:

continues to increase the bandwidth allocated to non-frozen data flows in proportion to weights of the data flows until an amount of bandwidth is frozen at all of the data flows.

70. (Previously Presented) An apparatus for allocating bandwidth to data flows through the apparatus, the apparatus comprising a memory to store executable code and a processor to execute the code to:

allocate bandwidth to the data flows passing through output ports of the apparatus using a weighted max/min process, wherein the weighted maximum/minimum process allocates bandwidth to uncommitted data traffic flows in proportion to a weight associated with each uncommitted data traffic flow, and the weight corresponding to a delay and an average rate requirement for each uncommitted data traffic flow.

71. (Original) The apparatus of claim 70, wherein allocating the bandwidth comprises:

increasing an amount of bandwidth allocated to data flows passing through each output port in proportion to a weight assigned to a data flow passing through an output port; and

freezing the amount of bandwidth allocated to the data flow passing through the output port when either

(i) the output port reaches a maximum utilization, or

(ii) the data flow reaches a maximum bandwidth.

72. (Previously Presented) The apparatus of claim 71, wherein the memory:

continues to increase the amount of bandwidth allocated to non-frozen data flows in proportion to weights of the data flows until the amount of bandwidth allocated to all data flows is frozen.

73. (Original) The apparatus of claim 72, wherein maximum values assigned to each data flow are based on the bandwidth allocations.

74. (Original) The apparatus of claim 71, wherein, after the amount of bandwidth assigned to all output ports is frozen, the apparatus distributes remaining bandwidth at an output port to data flows passing through the output port.

75. (Original) The apparatus of claim 71, wherein, after the amount of bandwidth assigned to all output ports is frozen, the apparatus distributes remaining bandwidth at an output port to data flows passing through the output port in proportion to weights of the data flows.

76. (Original) The apparatus of claim 71, wherein after all of the data flows passing through the apparatus are frozen, the apparatus distributes remaining bandwidth at an output port to data flows passing through the output port according to which data flows have a highest probability of using the bandwidth.

77. (Previously Presented) The apparatus of claim 76, wherein the bandwidth is allocated in discrete time intervals.

78. (Previously Presented) The apparatus of claim 70, wherein the memory:
allocates bandwidth to committed data traffic based on a guaranteed data transfer rate.

79. (Original) The apparatus of claim 78, wherein bandwidth is allocated to the committed data traffic in response to a request for bandwidth such that any request that is less than or equal to the guaranteed data transfer rate is granted.

80. (Original) The apparatus of claim 70, wherein:

the bandwidth is allocated to uncommitted data traffic and, for committed data traffic, bandwidth is allocated based on a guaranteed transfer rate; and

remaining bandwidth, not allocated to the committed data traffic, is allocated to the uncommitted data traffic.

81. (Previously Presented) The apparatus of claim 60, wherein the memory:

allocates a predetermined amount of bandwidth to one or more of the data flows; and

distributes remaining bandwidth to non-frozen remaining data flows by:

increasing an amount of bandwidth allocated to each remaining data flow in proportion to a weight assigned to the remaining data flow; and

freezing the amount of bandwidth allocated to a remaining data flow when either

(i) an input port or an output port of the apparatus reaches a maximum utilization, or

(ii) the remaining data flow reaches a maximum bandwidth.

82. (Original) The apparatus of claim 78, wherein bandwidth is allocated to the committed data traffic in response to a request for bandwidth such that any request that is greater than the guaranteed data transfer rate is granted at the guaranteed rate.

83. (Original) A method of transferring data traffic flows through a network device, comprising:

transferring a committed data traffic flow through the network device using a guaranteed bandwidth;

determining an amount of bandwidth that was used during a previous data traffic flow transfer; and

allocating bandwidth in the network device to uncommitted data traffic flows based on the amount of bandwidth that was used during the previous data traffic flow transfer.

84. (Original) The method of claim 83, wherein allocating comprises:

determining a difference between the amount of bandwidth that was used during the previous data traffic flow transfer and an amount of available bandwidth; and

allocating the difference in bandwidth to the uncommitted data traffic flows.

85. (Previously Presented) An apparatus for transferring data traffic flows through the apparatus, the apparatus comprising a memory to store executable code and a processor to execute the code to:

transfer a committed data traffic flow through the apparatus using a guaranteed bandwidth;

determine an amount of bandwidth that was used during a previous data traffic flow transfer; and

allocate bandwidth in the apparatus to uncommitted data traffic flows based on the amount of bandwidth that was used during the previous data traffic flow transfer.

86. (Original) The apparatus of claim 85, wherein allocating comprises:

determining a difference between the amount of bandwidth that was used during the previous data traffic flow transfer and an amount of available bandwidth; and

allocating the difference in bandwidth to the uncommitted data traffic flows.

87. (Previously Presented) The apparatus of any of claims 42, 48, 52, 56, 58, 66, 67, 70 and 85, wherein the memory comprises:

a memory which stores a computer program; and

a processor which executes the computer program.

88. (Previously Presented) The apparatus of any of claims 42, 48, 52, 56, 58, 66, 67, 70 and 85, wherein the memory comprises discrete hardware elements and/or programmable logic.

89. (Currently Amended) A computer program stored on a computer-readable medium for allocating bandwidth to data traffic flows for transfer through a network device, the computer program comprising instructions that cause a computer to:

maintain a queue size of a committed data traffic flow related to one or more committed data traffic flows for a virtual connection;

maintain a queue size of the uncommitted traffic flow queue related to one or more uncommitted data flows for the virtual connection;

allocate bandwidth to a committed data traffic flow based on a guaranteed data transfer rate and a queue size of the committed data traffic flow in the network device; and

allocate bandwidth to uncommitted data traffic flows using a weighted maximum/minimum process, wherein the weighted maximum/minimum process allocates bandwidth to the uncommitted data traffic flows in proportion to a weight associated with each uncommitted data traffic flow, and the weight corresponding to an amount of bandwidth needed by the uncommitted data traffic flow and determined based on a delay and an average rate requirement for each uncommitted data traffic flow.

90. (Currently Amended) A computer program stored on a computer-readable medium for allocating bandwidth to data flows passing through a network device, each of the data flows having an associated weight, the weight corresponding to an amount of bandwidth needed by an uncommitted data traffic flow, the computer program comprising instructions that cause a computer to:

increase an amount of bandwidth to the data flows in proportion to the weights of the data flows until one port through the network device reaches a maximum value;

freeze the amounts of bandwidth allocated to the data flows in the one port; and

increase the amount of bandwidth to all the remaining data flows passing through the network device in proportion to the weights of the remaining data flows.

91. (Currently Amended) A computer program stored on a computer-readable medium for allocating bandwidth to data flows passing through a network device, the computer program comprising instructions that cause the computer to:

allocate a predetermined amount of bandwidth to one or more of the data flows; and

distribute remaining bandwidth to remaining data flows using a weighted maximum/minimum process, wherein the weighted maximum/minimum process allocates bandwidth to the remaining data flows in proportion to a weight associated with each remaining data flow, and the weight corresponding to an amount of bandwidth needed by a data traffic flow and being determined based on a delay and an average rate requirement for each uncommitted data traffic flow.

92. (Previously Presented) A computer program stored on a computer-readable medium for allocating bandwidth to data flows passing through a network device, the computer program comprising instructions that cause the computer to:

determine a character of the data flows, the character corresponding to a probability of the data flow in using the bandwidth; and

allocate bandwidth to the data flows in accordance with the character of the data flows; wherein the bandwidth is allocated to data flows according to which data flows have a highest probability of using the bandwidth.

93. (Currently Amended) A computer program stored on a computer-readable medium for allocating bandwidth to data flows passing through a network device, the computer program comprising instructions that cause the computer to:

allocate the bandwidth using a weighted maximum/minimum process, wherein the weighted maximum/minimum process allocates bandwidth to uncommitted data traffic flows in proportion to a weight associated with each uncommitted data traffic flow, and the weight corresponding to an amount of bandwidth needed by an uncommitted data traffic flow and being

determined based on a delay and an average rate requirement for each uncommitted data traffic flow.

94. (Previously Presented) A computer program stored on a computer-readable medium for allocating bandwidth to data flows through a network device, the computer program comprising instructions that cause the computer to:

allocate bandwidth to the data flows using a weighted max/min process, wherein the weighted maximum/minimum process allocates bandwidth to uncommitted data traffic flows in proportion to a weight associated with each uncommitted data traffic flow, and the weight corresponding to a delay and an average rate requirement for each uncommitted data traffic flow; wherein an amount of bandwidth allocated to data flows passing through an input port of the network device is greater than an amount of data that can pass through the input port of the network device.

95. (Previously Presented) A computer program stored on a computer-readable medium for allocating bandwidth to data flows passing through a network device, the computer program comprising instructions that cause the computer to:

allocate bandwidth to data flows passing through input ports of the network device using a weighted max/min process, wherein the weighted maximum/minimum process allocates bandwidth to uncommitted data traffic flows in proportion to a weight associated with each uncommitted data traffic flow, and the weight corresponding to a delay and an average rate requirement for each uncommitted data traffic flow.

96. (Previously Presented) A computer program stored on a computer-readable medium for allocating bandwidth to data flows through a network device, the computer program comprising instructions that cause the computer to:

allocate bandwidth to the data flows passing through output ports of the network device using a weighted max/min process, wherein the weighted maximum/minimum process allocates

bandwidth to uncommitted data traffic flows in proportion to a weight associated with each uncommitted data traffic flow, and the weight corresponding to a delay and an average rate requirement for each uncommitted data traffic flow.

97. (Original) A computer program stored on a computer-readable medium for transferring data traffic flows through a network device, the computer program comprising instructions that cause a computer to:

transfer a committed data traffic flow through the network device using a guaranteed bandwidth;

determine an amount of bandwidth that was used during a previous data traffic flow transfer; and

allocate bandwidth in the network device to uncommitted data traffic flows based on the amount of bandwidth that was used during the previous data traffic flow transfer.